

Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed**1.1. Name of the Data, data collection Project, or data-producing Program:**

2007 USFS Lidar: Malheur National Forest - Damon Creek, OR

1.2. Summary description of the data:

No metadata record for this data set was provided to the NOAA Office for Coastal Management (OCM). This record was created with information from the data report. A link to the data report is provided in the URL section of this metadata record.

Watershed Sciences, Inc. (WS) collected Light Detection and Ranging (LiDAR) data for the Damon Region of Malheur National Forest on September 15 and 16, 2007. The Area of Interest (AOI) covers 31,614 acres (north: 9,598 acres, south: 22,016 acres). The LiDAR survey utilized a Leica ALS50 Phase II laser mounted in a Cessna Caravan 208B. The sensor scan angle was ± 14 degrees from nadir, with a pulse rate designed to yield an average native density (number of pulses emitted by the laser system) of ≥ 4 points per square meter over terrestrial surfaces.

1.3. Is this a one-time data collection, or an ongoing series of measurements?

One-time data collection

1.4. Actual or planned temporal coverage of the data:

2007-09-15 to 2007-09-16

1.5. Actual or planned geographic coverage of the data:

W: -119.1669, E: -118.9271, N: 44.2634, S: 44.0636

Malheur National Forest, Damon Creek project area.

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
Point Cloud (Digital)

1.7. Data collection method(s):

(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:**1.8.1. If data are from another observing system, please specify:****2. Point of Contact for this Data Management Plan (author or maintainer)****2.1. Name:**

NOAA Office for Coastal Management (NOAA/OCM)

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

NOAA Office for Coastal Management (NOAA/OCM)

2.4. E-mail address:

coastal.info@noaa.gov

2.5. Phone number:

(843) 740-1202

3. Responsible Party for Data Management

Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:**3.2. Title:**

Data Steward

4. Resources

Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?

Yes

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

Unknown

5. Data Lineage and Quality

NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly

accessible

(describe or provide URL of description):

Lineage Statement:

Watershed Sciences collected Light Detection and Ranging (LIDAR) data in the Malheur National Forest, Damon Creek project area for the USDA Forest Service. NOAA OCM received the data and ingested it into the Digital Coast Data Access Viewer for distribution.

Process Steps:

- 2017-07-20 00:00:00 - Acquisition The full survey was conducted September 15 and 16, 2007. The LiDAR survey utilized a Leica ALS50 Phase II laser mounted in a Cessna Caravan 208B. The sensor scan angle was $\pm 140^\circ$ from nadir with a pulse rate designed to yield an average native density (number of pulses emitted by the laser system) of ≥ 4 points per square meter over terrestrial surfaces. Some types of surfaces (e.g. dense vegetation or water) may return fewer pulses than the laser originally emitted. Therefore, the delivered density can be less than the native density and variable according to distributions of terrain, land cover and water bodies. The Leica ALS50 Phase II system allows up to four range measurements per pulse, and all discernable laser returns were processed for the output dataset. To solve for laser point position, it is vital to have an accurate description of aircraft position and attitude. Aircraft position is described as x, y and z and measured twice per second (2 Hz) by an onboard differential GPS unit. Aircraft attitude is measured 200 times per second (200 Hz) as pitch, roll and yaw (heading) from an onboard inertial measurement unit (IMU).

- 2018-01-01 00:00:00 - Calibration/Classification

1. Resolve kinematic corrections for aircraft position data using kinematic aircraft GPS and static ground GPS data. Software: Waypoint GPS v.7.60
2. Develop a smoothed best estimate of trajectory (SBET) file that blends post-processed aircraft position with attitude data. Sensor heading, position, and attitude are calculated throughout the survey. Software: IPAS v.1.0
3. Calculate laser point position by associating SBET position to each laser point return time, scan angle, intensity, etc. Creates raw laser point cloud data for the entire survey in *.las (ASPRS v1.1) format. Software: ALS Post Processing Software
4. Import raw laser points into subset bins (less than 500 MB, to accommodate file size constraints in processing software). Perform manual relative accuracy calibration and filter for pits/birds. Ground points are then classified for individual flight lines (to be used for relative accuracy testing and calibration). Software: TerraScan v.6.009
5. Test relative accuracy using ground classified points per each flight line. Perform automated line-to-line calibrations for system attitude parameters (pitch, roll, heading), mirror flex (scale) and GPS/IMU drift. Calibrations are performed on ground classified points from paired flight lines. Every flight line is used for relative accuracy calibration. Software: TerraMatch v.6.009
6. Import position and attitude data. Classify ground and non-ground points. Assess statistical absolute accuracy via direct comparisons of ground classified points to ground RTK survey data. Convert data to orthometric elevations (NAVD88) by applying a Geoid03 correction. Create ground model as a triangulated surface and export as

ArcInfo ASCII grids at the specified pixel resolution. Software: TerraScan v.6.009, ArcMap v9.2

- 2020-05-25 00:00:00 - The NOAA Office for Coastal Management (OCM) received 246 lidar point cloud files in laz format from the USDA Forest Service. The files contained lidar elevation and intensity measurements. The data were in UTM Zone 11 North (NAD83) coordinates and NAVD88 (Geoid03) elevations, with all units in meters. OCM performed the following processing on the data for Digital Coast storage and provisioning purposes: 1. An internal OCM script was run to check the number of points by classification and by flight ID and the gps and intensity ranges.

2. Internal OCM scripts were run on the laz files to convert from orthometric (NAVD88) elevations to ellipsoid elevations using the Geoid 03 model, to convert from UTM Zone 11N coordinates in meters, to geographic coordinates, to assign the geokeys, to sort the data by gps time, and zip the data to database and to http. (Citation: processed lidar data)

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:

- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 5.2. Quality control procedures employed
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.4. Approximate delay between data collection and dissemination
- 8.3. Approximate delay between data collection and submission to an archive facility

6.2. Name of organization or facility providing metadata hosting:

NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:

<https://www.fisheries.noaa.gov/inport/item/59827>

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access

NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

Yes

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:

NOAA Office for Coastal Management (NOAA/OCM)

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=9100>

https://coast.noaa.gov/htdata/lidar4_z/geoid18/data/9100

7.3. Data access methods or services offered:

Data is available online for bulk and custom downloads.

7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:

(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

NCEI_CO

8.1.1. If World Data Center or Other, specify:**8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:****8.2. Data storage facility prior to being sent to an archive facility (if any):**

Office for Coastal Management - Charleston, SC

8.3. Approximate delay between data collection and submission to an archive facility:**8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?**

Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

Data is backed up to tape and to cloud storage.

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.